

September 2021

NFTs – A Primer Future of Finance



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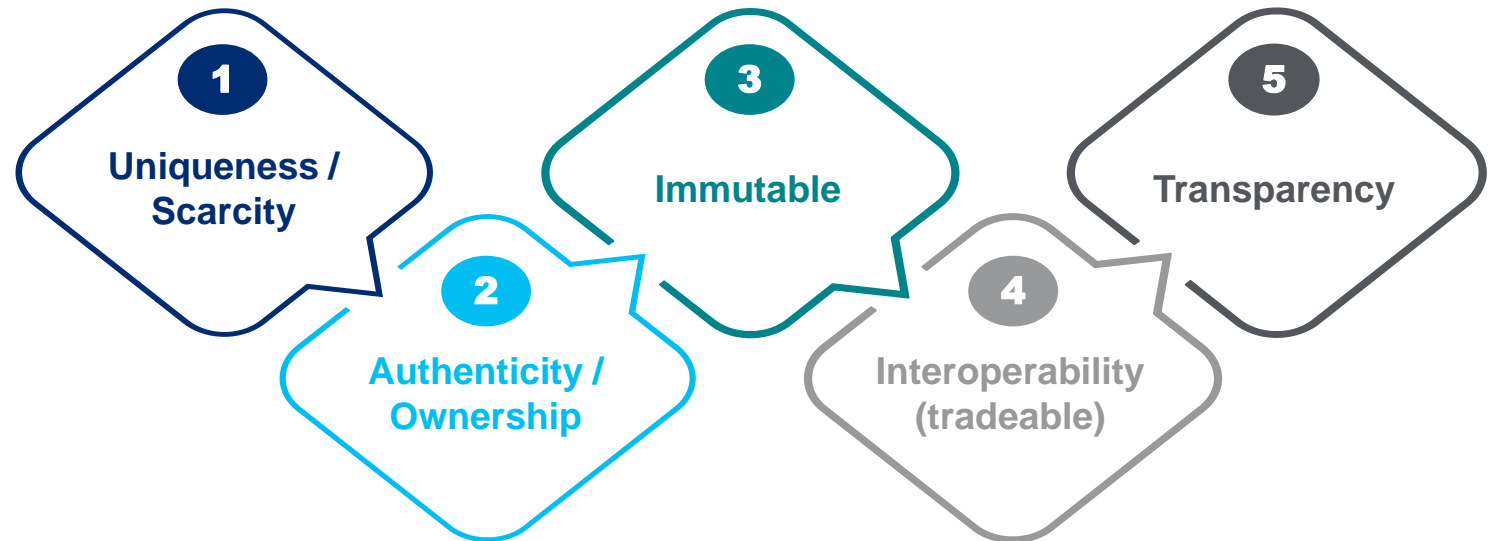
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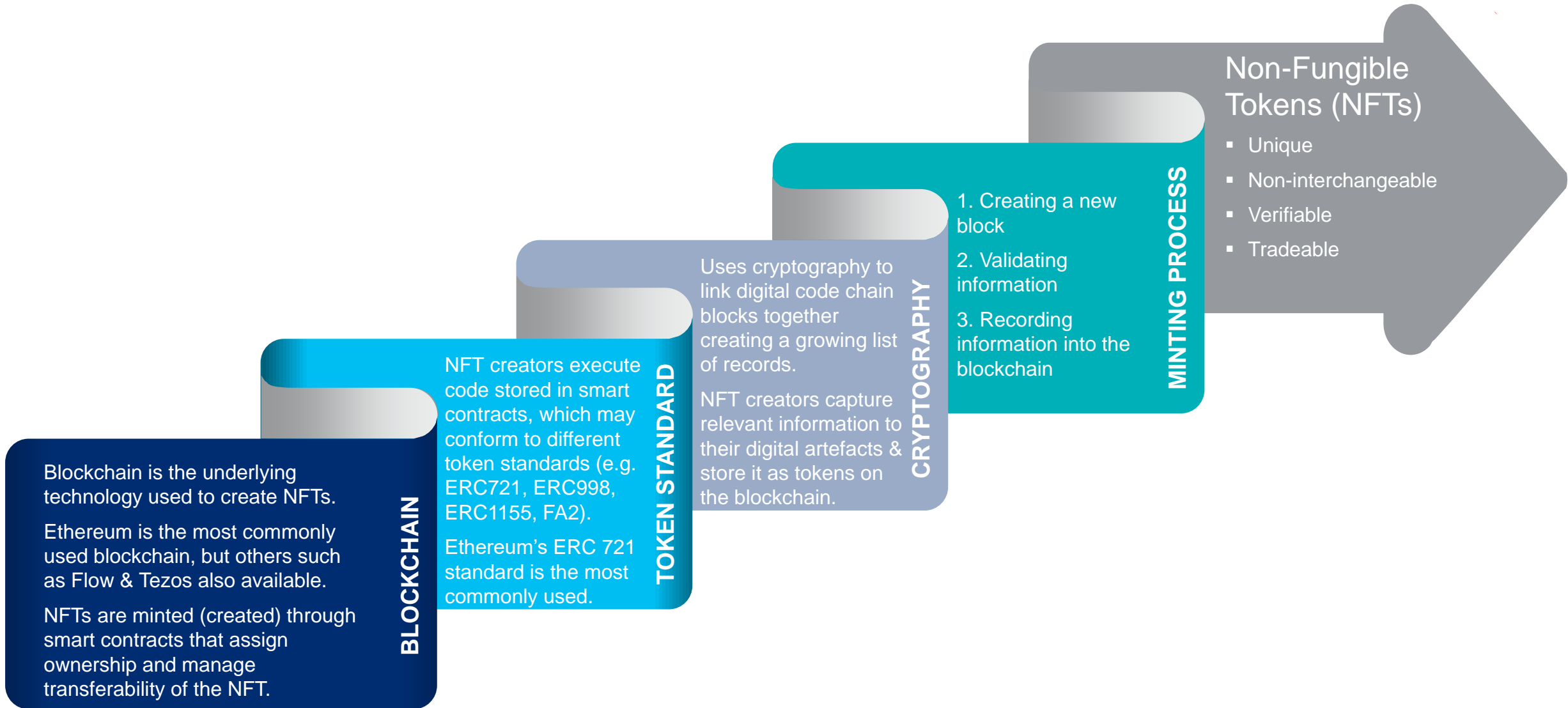
What Are Non-Fungible Tokens (NFTs)?

- **What is Fungibility?** It is the ability of an asset to be interchanged with another of the same type.
Example: Two \$10 bills can be used interchangeably and have the same value at any given point of time. This makes the \$10 bill a fungible asset.
- **Non-Fungible Tokens** are not interchangeable and have a unique value proposition stored on a digital ledger (mostly Ethereum blockchain).
- **What do NFTs Represent?** Anything digital, such as photos, videos, audio, text files or other collectibles. NFT holders may also get exclusive access to crypto community groups (e.g., discord groups)
- **Origins** – Among the first NFTs were Bitcoin-based trading cards, published on the Ethereum blockchain using CryptoPunks in 2016. In 2017, development of the blockchain-based game CryptoKitties used NFTs to represent ownership of digital cats on their platform.
- We recently hosted Nanne Dekking (CEO, Co-Founder of Artory Inc.) to discuss if NFTs are the Future of the Art Market – [Replay](#) / [Short Video](#)

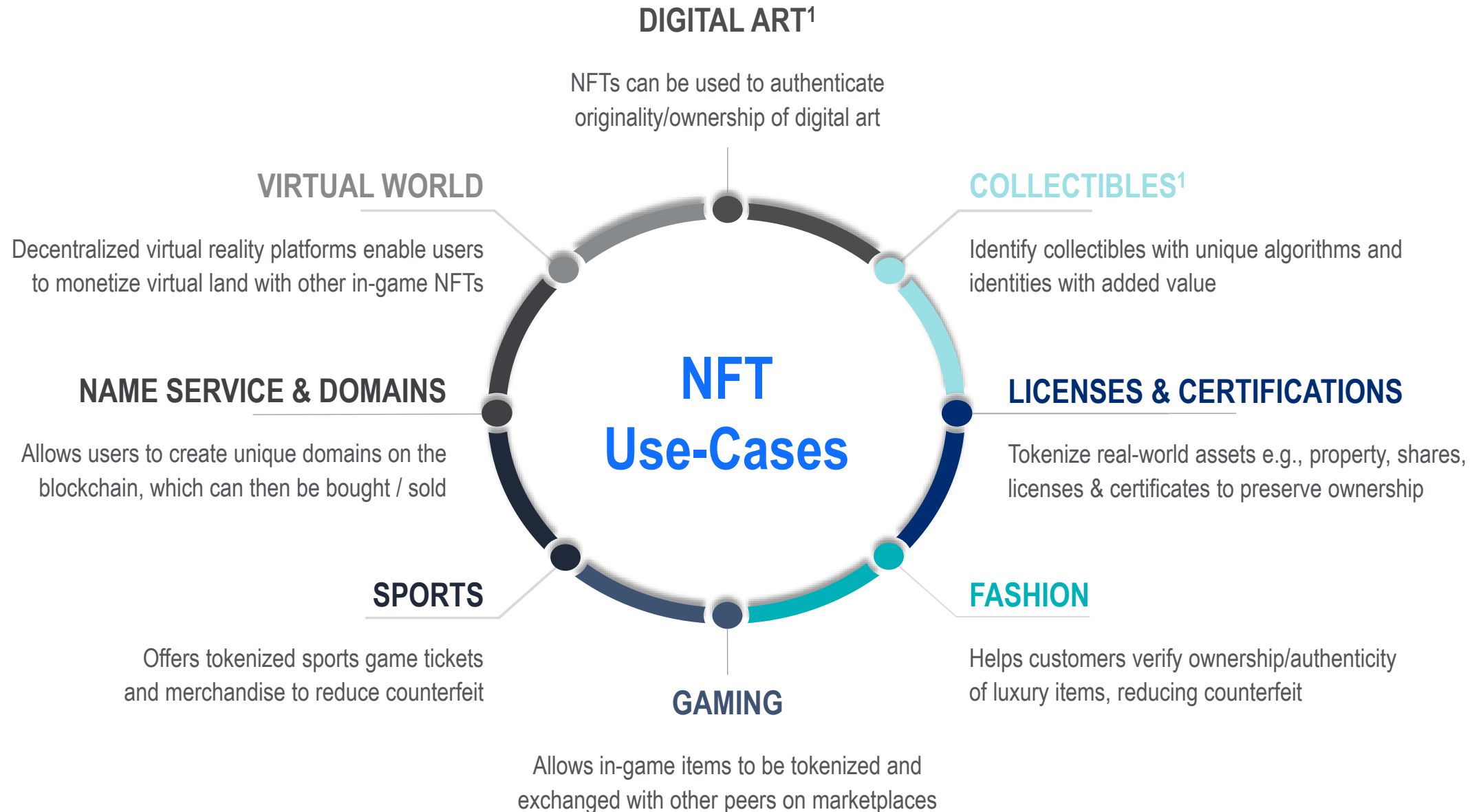
NFT Characteristics



How Do NFTs Work?



NFTs Most Widely Used for Collectibles/Art Today; But Gaining Prominence Elsewhere



¹ Collectibles and Art accounted for 66% and 14% of total NFT market distribution (USD traded) between segments in 2Q 2021 based on data from nonfungible.com. Source: 101 Blockchains, NonFungible.com, Citi Global Insights

Exploring the NFT Ecosystem



Role of Crypto Keys

Content Creators' Public Crypto Key

01

Proof of authenticity for the digital object represented by the NFT.

Private Crypto Key

02

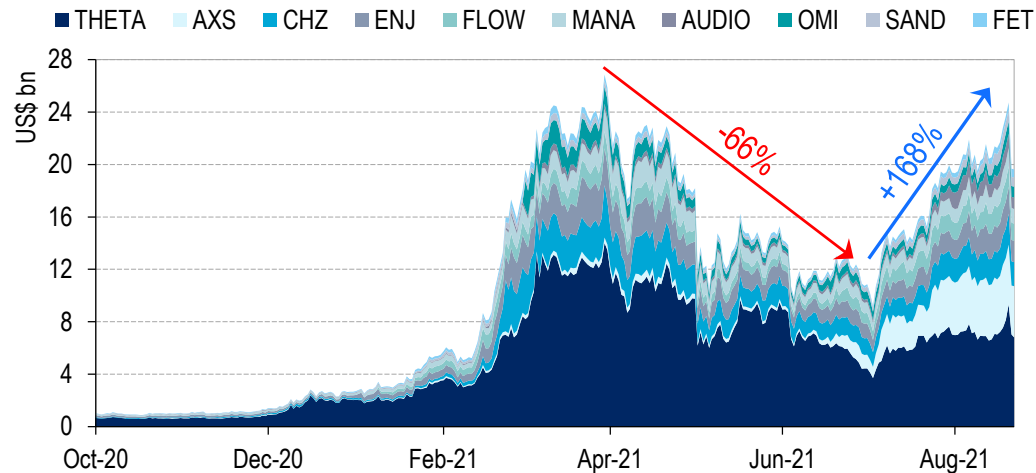
Available with the NFT owner. Proof of ownership of the original

Source: Citi Global Insights

The NFT Summer

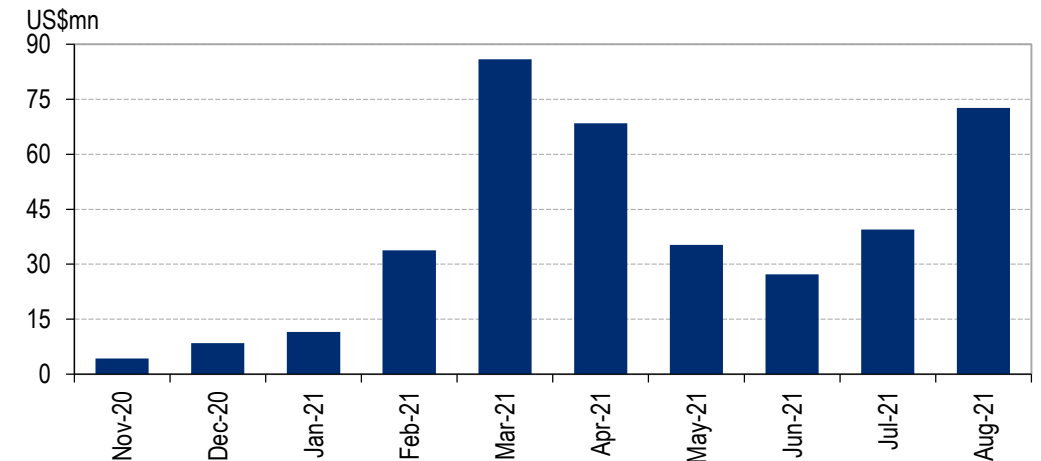
- NFTs have witnessed an **explosion of interest** – aggregate market value of top-10 NFTs **spiralled 10x to \$20bn presently** vs. \$2bn at start of 2021. Yet, it is important to note that the NFT sector is still in its infancy and is just beginning to work itself into mainstream conversations.
- NFT prices are prone to high **volatility** and possibly **speculation**, often times reflecting the momentum seen across the cryptocurrency markets. E.g., In 2021, aggregate market value of top-10 NFTs dropped sharply from a peak of \$27bn in Apr'21 to \$9bn (-66%) in Jul'21, before soaring back to \$24bn in Sep'21 (+168%).

Aggregate Market Value of Top-10 Non-Fungible Tokens, US\$ bn



Note: THETA = Theta, AXS = Axie Infinity, CHZ = Chiliz, ENJ = Enjin Coin, FLOW = Flow, MANA = Decentraland, AUDIO = Audius, OMI = ECOMI, SAND = Sand, FET = Fetch.ai.
Source: coingecko, Citi Global Insights

Total NFT Trading Volume, Nov. 2020-Aug. 2021, US\$m

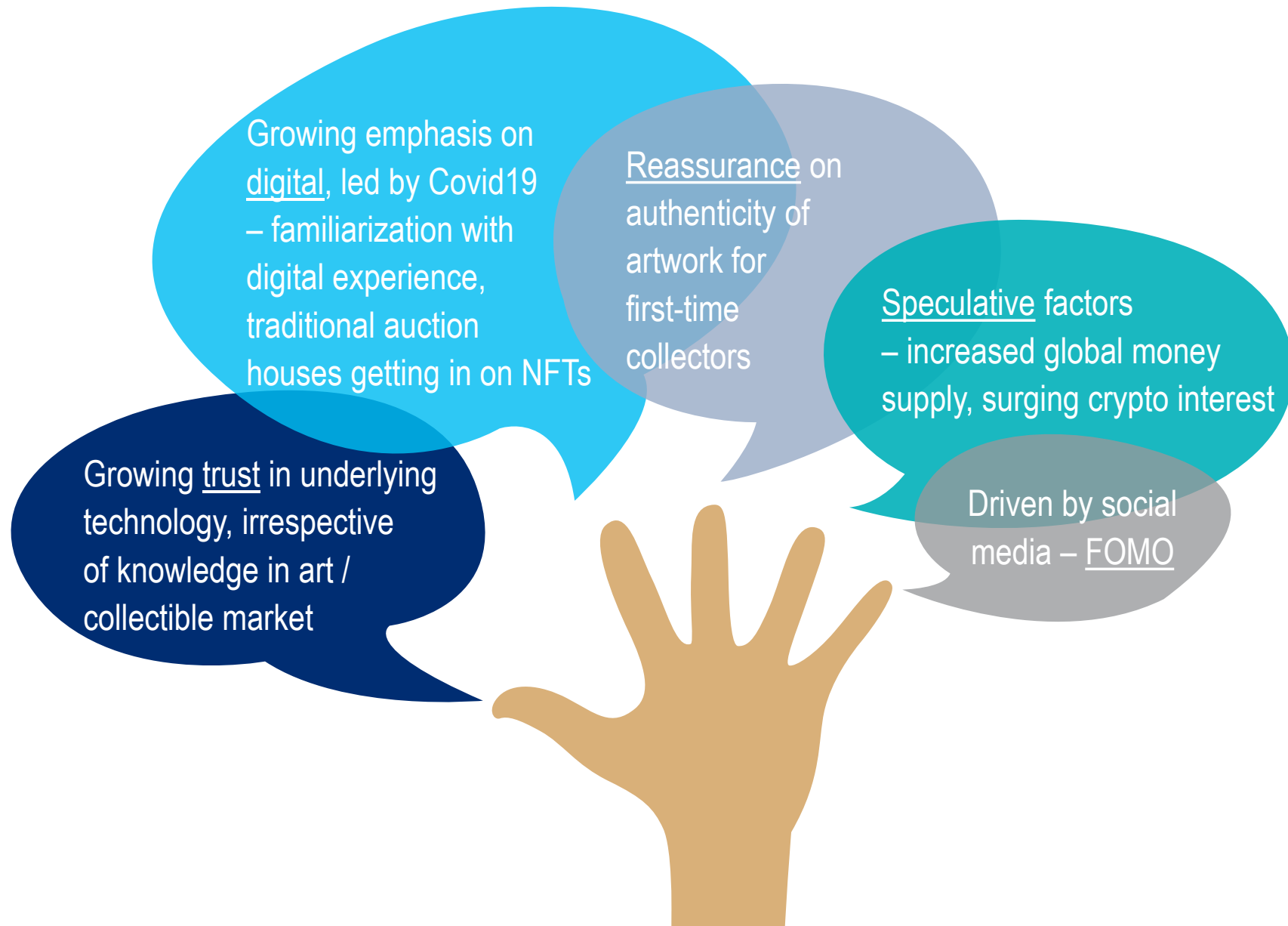


Source: Coinranking, Citi Global Insights

Empowering Content Creators; De-Platformification



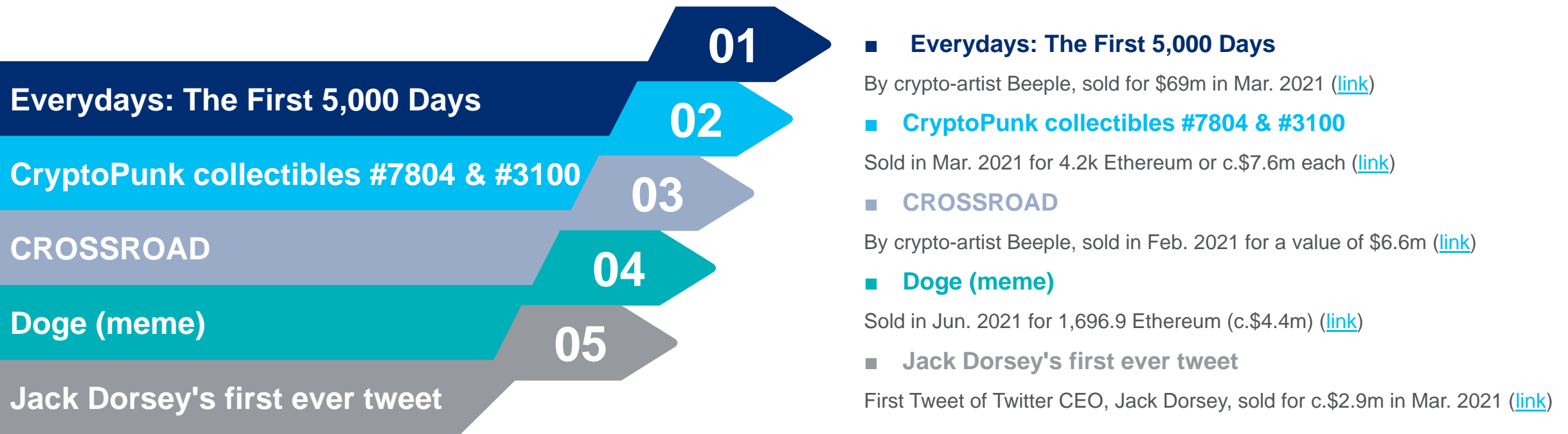
NFTs are Supercharging the Art World – What’s Driving Collectors Interest?



Importance of Authenticity & Trust in the Art World

- NFTs provide a proof of ownership of **non-interchangeable** digital assets. Unlike cryptos that are fungible (e.g., Bitcoin, Ether), NFTs are **unique**.
- Proof of **Authenticity, Provenance** – Being on a blockchain, each token has a verifiable metadata and permanent transaction log that can prove the history of ownership beyond the life of any individual, company or platform.

Boom in Digital Art/Collectibles – Popular NFTs sold in 2021



NFT Risk & Concerns

EXPENSIVE

- Creating an NFT can be an expensive process, including the cost of buying the blockchain token (e.g., Ethereum) and payment of fees for handling the transaction (referred to as 'gas' fees).
- NFTs like other cryptos are based on blockchain technology and consume a lot of electricity, raising sustainability concerns

BAD TOKENS

- Like all forms of art, NFTs require good understanding of the subject-matter and due diligence of the underlying smart-contracts.
- Bad players could theoretically mint a NFT of a file that doesn't belong to them & sell it to unsuspecting buyers.

REPUTATIONAL RISK

- Number of e-sports, gaming, musicians introduced NFTs, especially during the pandemic as live events / revenue from ticket sales were low.
- Such moves could cause reputational damage as organisations could be perceived as making a 'quick buck'.

SPECULATION, FRAUD

- NFTs may be used as a speculative asset, where one buys in hope that its value will go up further eventually
- Newcomers may find it difficult to identify frauds (e.g.: NFT wash trading, where prices are artificially pumped up).





Environmental Concerns

- Environmental footprint of NFTs is often a subject of debate (akin to cryptocurrencies).
- According to Memo Akten, an artist and creative technologist, the carbon footprint for a single-edition NFT can be equivalent to a months' energy usage for an EU resident, with emissions equivalent to driving for 1,000kms or flying for 2 hours ([link](#)).
- However, there is growing focus on the use of green energy mining to reduce CO2 emissions and the use of Proof of Stake model for mining cryptos.

Social Impact

- NFTs arguably help new content creators access the market and monetize their effort – helping democratize access and promoting inclusivity.

Governance

- Limited regulatory or legal frameworks that monitor/govern NFT use is often a concern. However some common areas where traditional laws may interplay with NFTs include: content rights, AML/sanctions law, securities law, taxation etc.

Crypto / Digital Assets – Citi Published Material

GPS

[Future of Money – Crypto, CBDCs and 21st Century Cash](#)

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[How Socially Inclusive is Crypto?](#)

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[How ESG-Unfriendly Is Bitcoin?](#)

[Who Moved My CBDC?](#)

[Ethereum 101](#)

[Cryptocurrencies in the Middle East](#)

[DeFi & NFTs: Expanding the Crypto Universe](#)

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